Telling Our Story Using Data

Presented to: TCUF 2014 Annual Conference
October 3, 2014

Best Management Practices for Condition Assessment and Project Planning

Lockwood, Andrews & Newnam, Inc.
A LEO A DALY COMPANY

Learning Objectives

- Facilities history of Alamo Colleges
- Role of Facility Condition Assessment (FCA) in understanding “What do we own and what shape is it in?”
- Role of FCA in forecasting PM budgets
- Conflict between named Facility Condition Index (FCI) projects and “wants”
- Overcoming expectation of “Industry Standard” perception by leadership
- Energy Assessment Opportunities
- Challenges with communicating nuances of data to non-technical consumers
- Importance of keeping data fresh
- Planning your programs
- Success and failures – lesson’s learned

Space: How much you have, what shape is it in and how is it used?

Alamo Colleges

- Five (5) major campuses
- 210 Buildings
- 4,988,137 sf
- $995,272,000 Replacement Cost
- 200+ Facilities Employees
- 62,377 students
- 942 acres
- $315MM Annual Budget
- $36MM Maintenance and Operations (includes utilities)

Serving the greater San Antonio area.

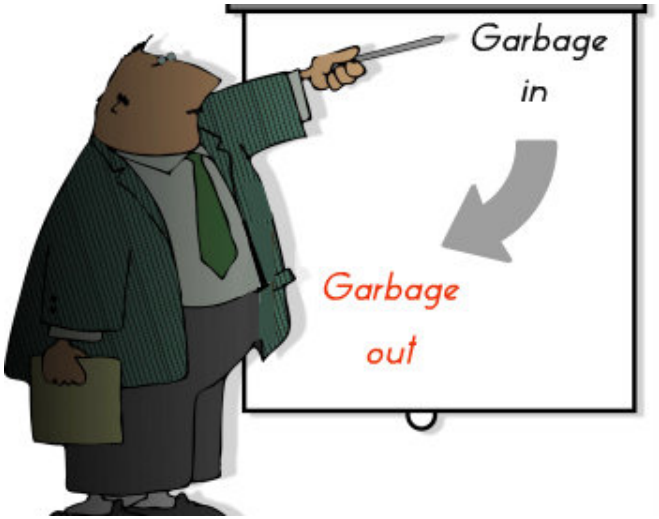
Start With Assessment

- Know How Much You Own
- Know The Condition
- Know Before You Go

“Report Card” for your facilities

Assessment Methodology

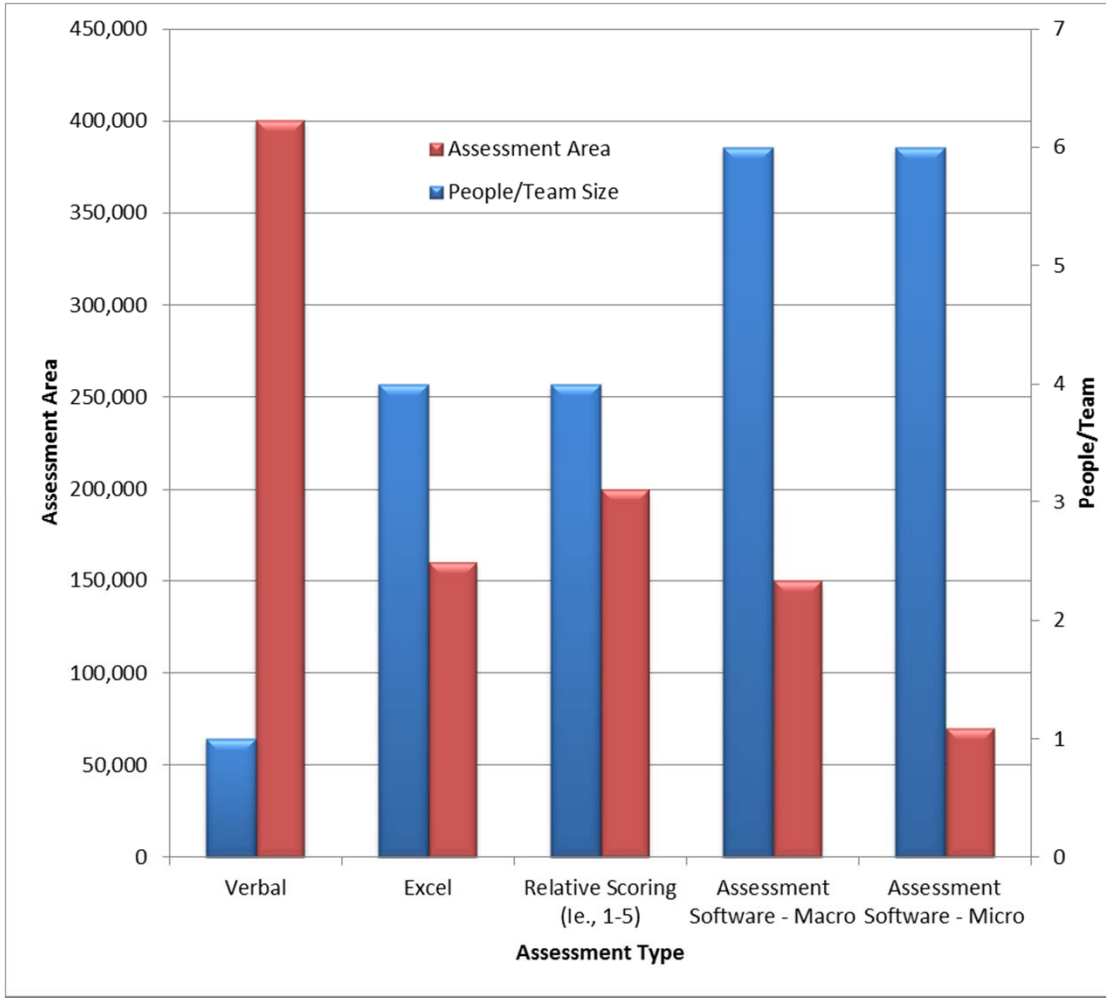
- Methodology
  - Professional Architects
  - Professional Engineers
  - Multi-Discipline
  - Data Collection Options
    - Verbal communication, anecdotal
    - Excel
    - Relative scoring (Ie., 1-5)
    - Assessment software-Typical For Gov't Entities
      - Macro level detail
      - Micro level detail



"Garbage in = Garbage out"

Assessment Methodology

- Typical Productivity



Productivity Varies Widely According To Level Of Assessment Detail

Assessment Math

- Terms:
  - Requirements
  - Replacement Value
  - Facility Condition Index (FCI)

FCI = Facility Condition Index

FCI is an index of current facility condition based on the cost of deferred maintenance requirements relative to the building replacement value.

$$FCI = \frac{\text{requirement costs}}{\text{building replacement value}}$$

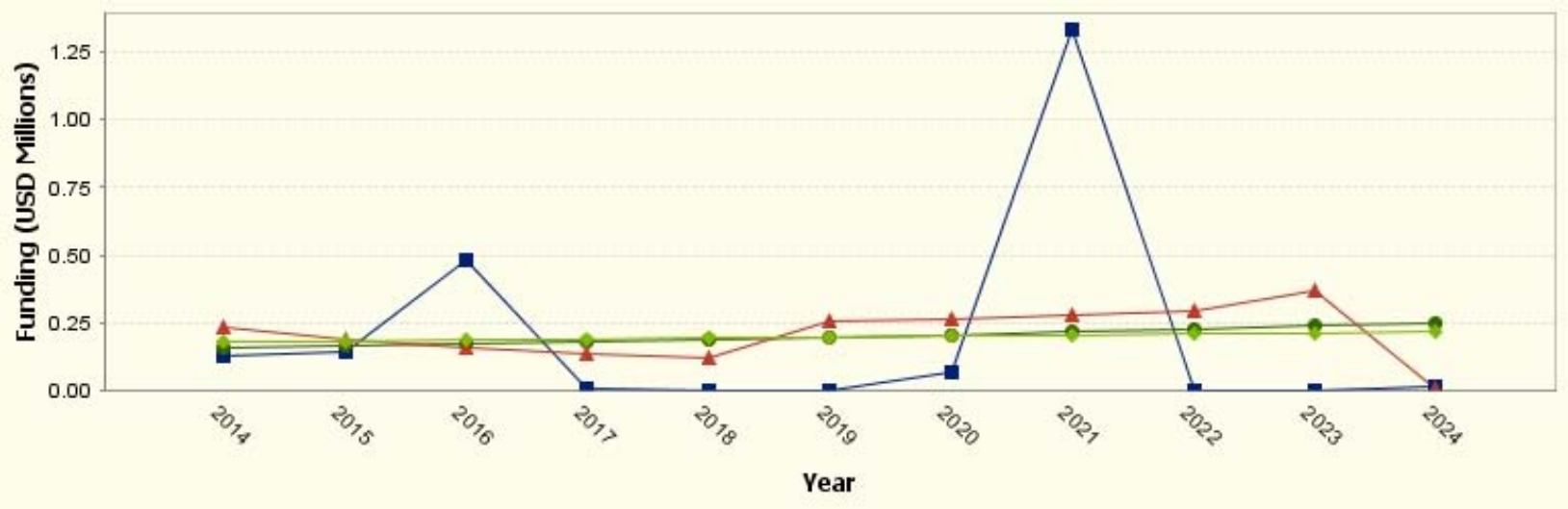
FCI is the center of your argument for funding

FCI “Industry Standard”

- 50% Rule
- Intrinsic Value
- Best-In-Class Consideration
- 15% Goal

Standards do not exist.

FCI Deeper Dive

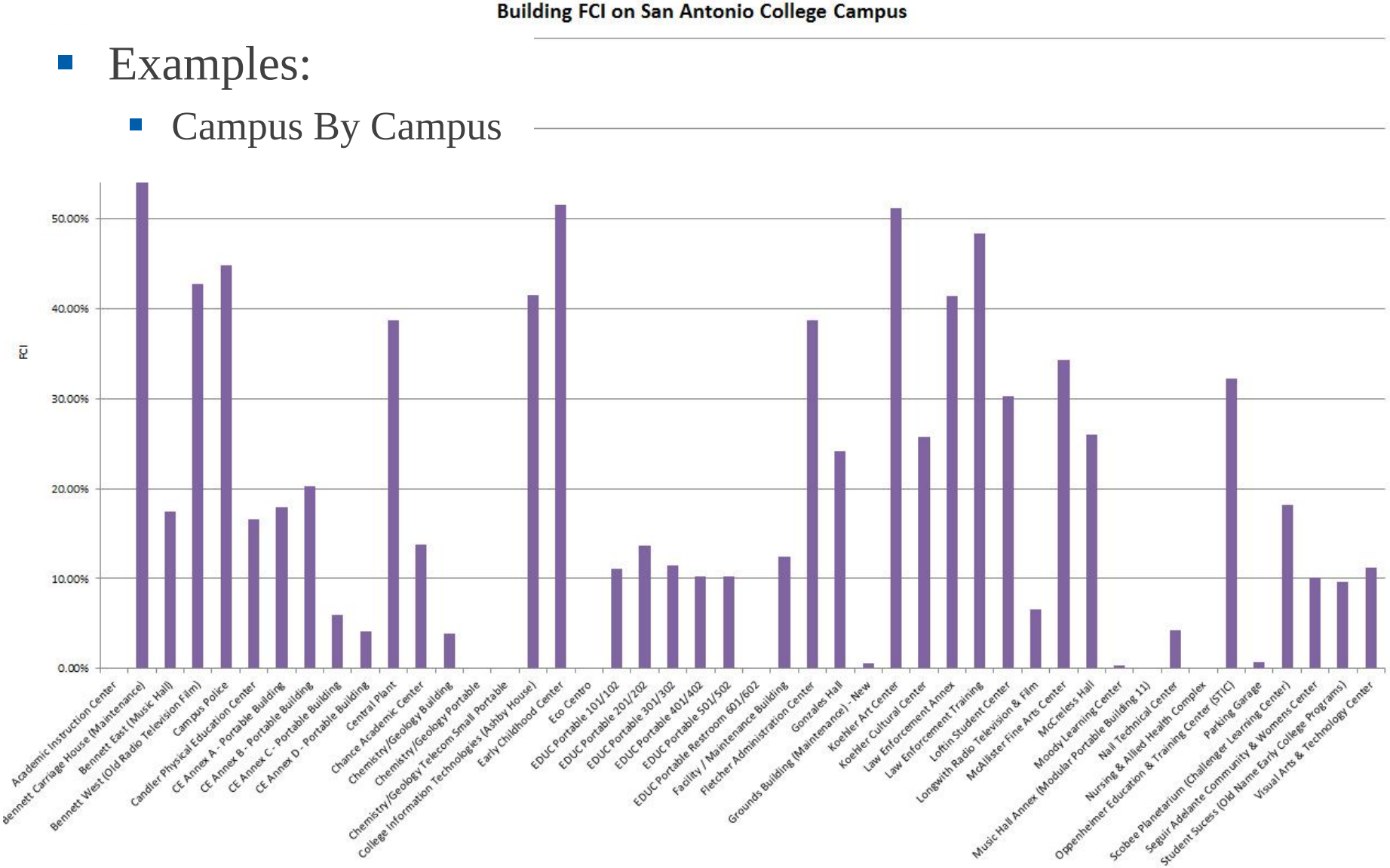


- Examples:
  - Building By Building

FCI is the center of your argument for funding

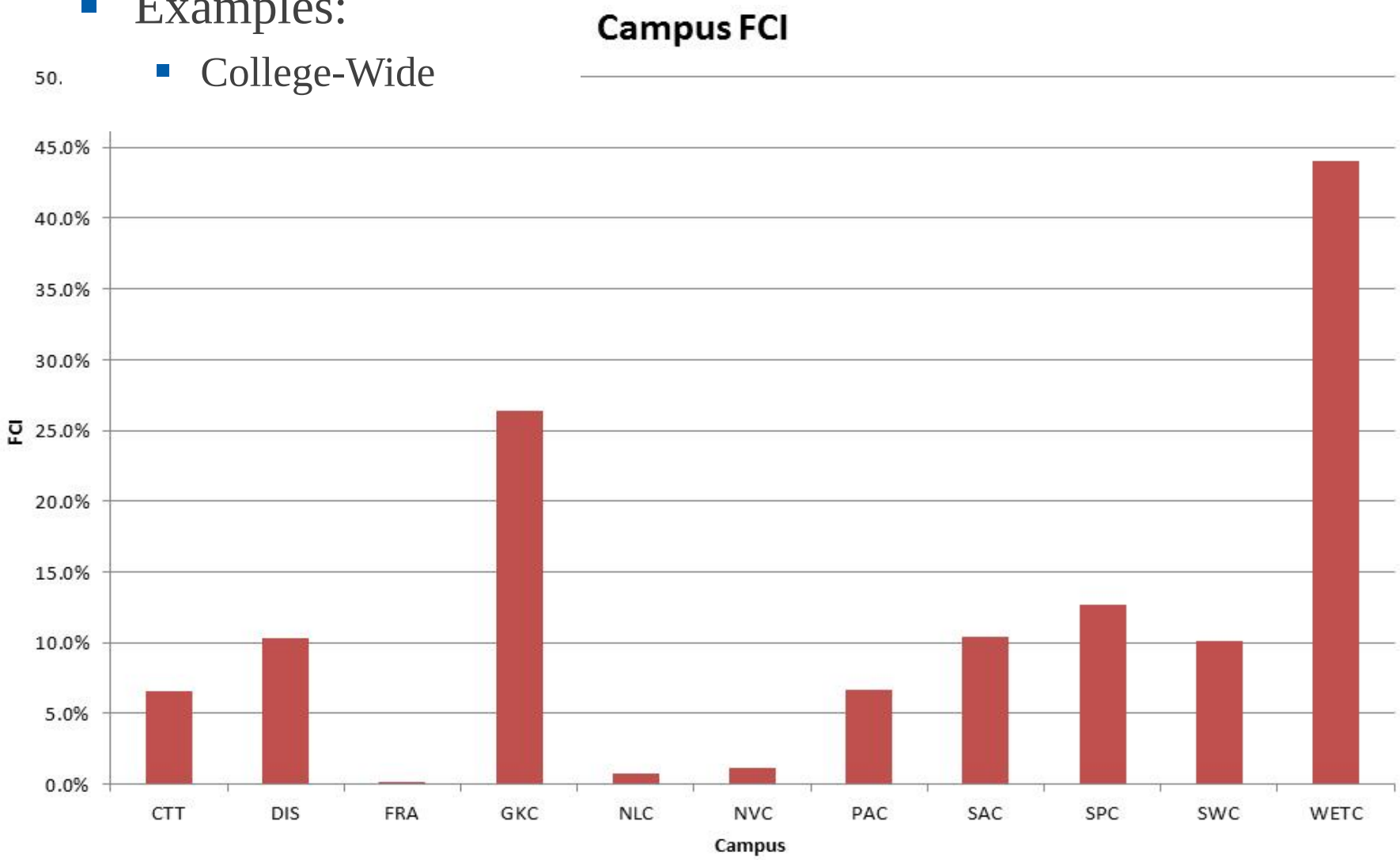
FCI Deeper Dive

- Examples:
  - Campus By Campus



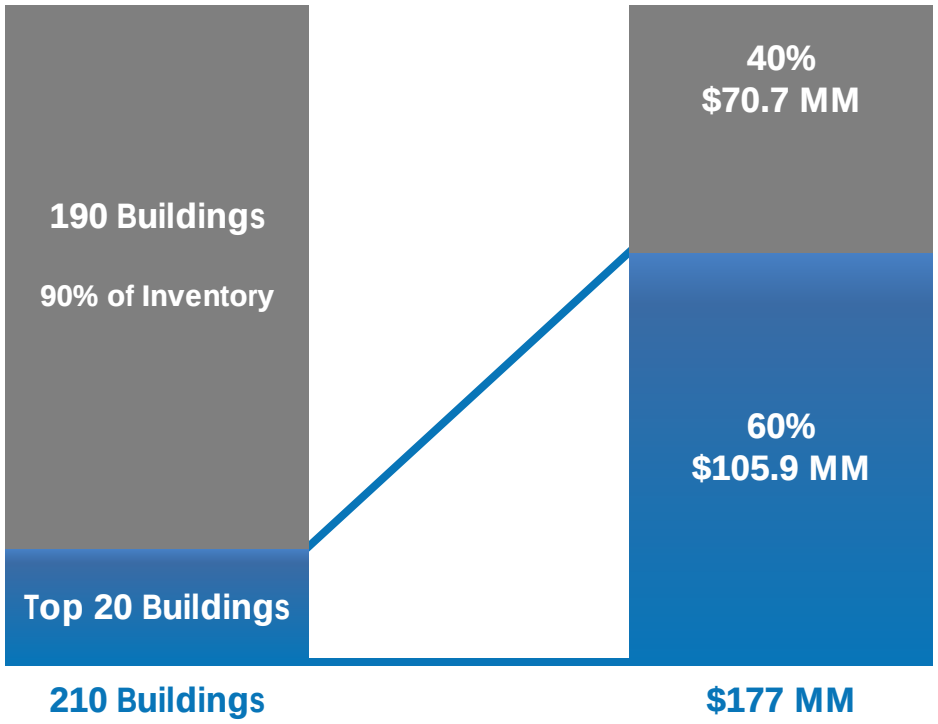
FCI Deeper Dive

- Examples:
  - College-Wide



FCI Deeper Dive

- Examples:
  - "Top 20" FCI losers



FCI is the center of your argument for funding

FCI Deeper Dive

FCI Deeper Dive

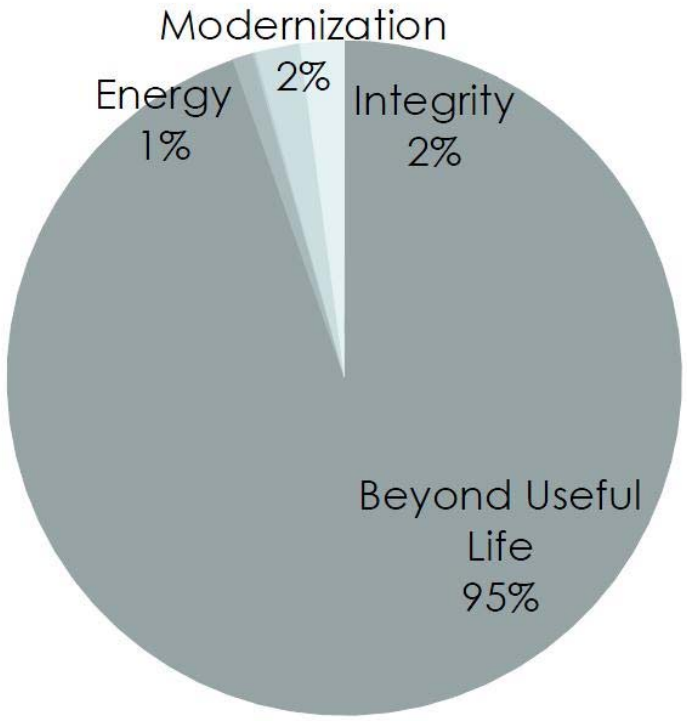
- Examples:
  - Age Distribution

Age Range of Buildings	Number of Buildings	GSF in Age Range	% of Total (GSF)
Greater than 50 Years Old	33	965,454	20%
Between 25 and 50 Years Old	30	852,160	17%
Between 10 and 25 Years Old	49	916,763	19%
Less Than 10 Years Old	98	2,214,544	45%
Total	**210**	**4,948,921**	**100%**

FCI is the center of your argument for funding

- Examples:
  - Need Type

PREVENTIVE MAINTENANCE: Requirements by Category



Category	Estimated Cost
Beyond Useful Life	$ 167,048,203
Energy	$ 1,729,538
Reliability	$ 238,605
Modernization	$ 3,773,739
Miscellaneous	$ 32,005
Appearance	$ 35,223
Integrity	$ 3,652,075
Life Safety	$ 5,567
Accessibility	$ 4,494
Total	$ 176,519,449

$177 MM Total Identified Requirements

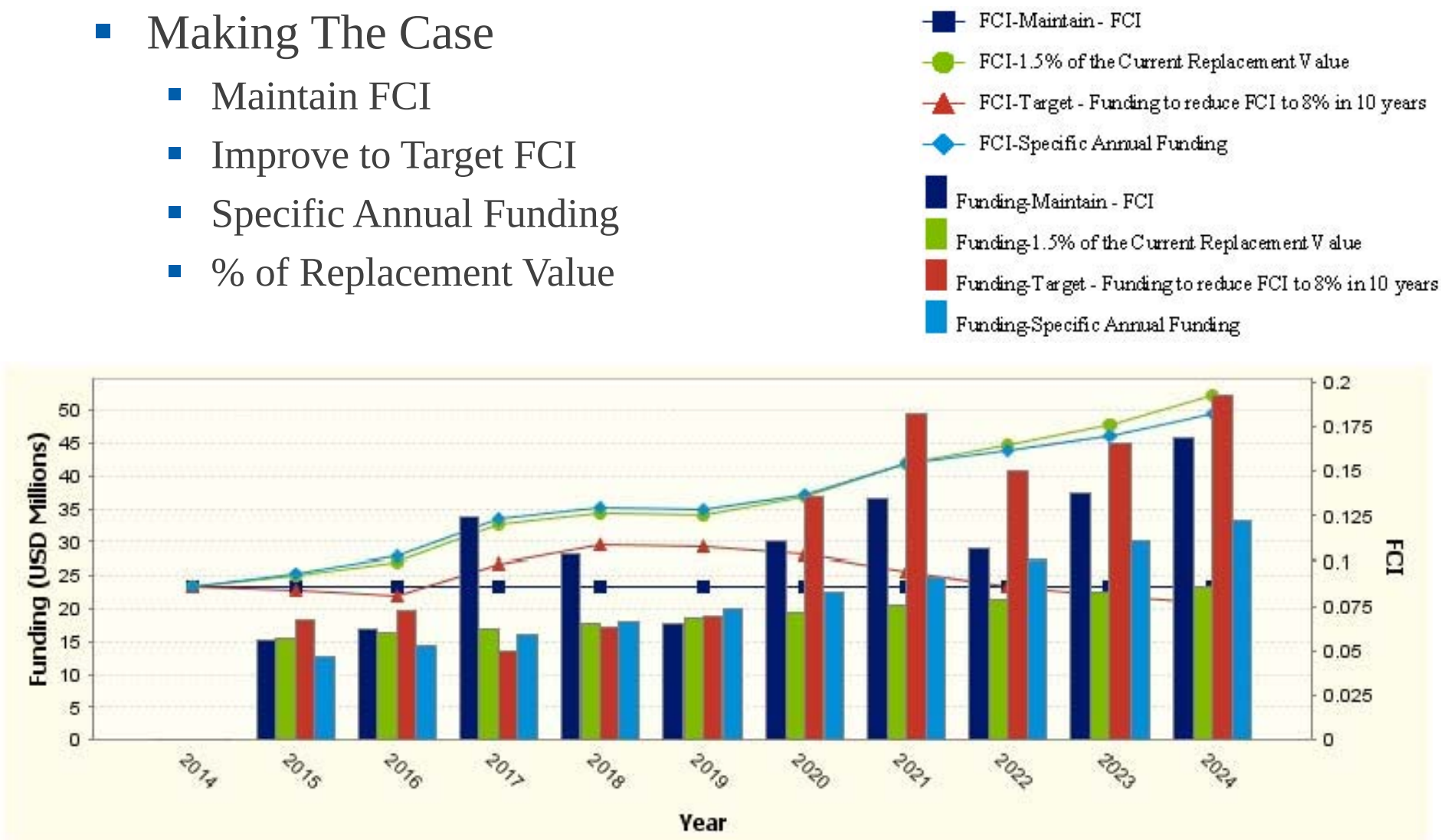
FCI Deeper Dive

- Examples:
  - Need Type

Requirement	Estimated Cost	Linked System
Aluminum Windows Renewal	$ 238,176.00	B2020 - Exterior Windows - Aluminum Windows
Door Assembly - 6 x 7 Storefront Renewal	$ 32,965.00	B2030 - Exterior Doors - Door Assembly - 6 x 7 Storefront
Restroom Accessories - Economy Renewal	$ 77,872.00	C1030 - Fittings - Restroom Accessories - Economy
Ceramic Tile Renewal	$ 136,549.00	C3010 - Wall Finishes - Ceramic Tile
Ceramic Tile-Corridor Renewal	$ 106,063.00	C3010 - Wall Finishes - Ceramic Tile-Corridor
Painted Finish - Average (1 Coat Prime - 2 Coats Finish) Renewal	$ 158,784.00	C3010 - Wall Finishes - Painted Finish - Average (1 Coat Prime - 2 Coats Finish)
Sound Attenuation Panels Renewal	$ 16,170.00	C3010 - Wall Finishes - Sound Attenuation Panels
Carpeting - Broadloom - Economy Renewal	$ 74,993.00	C3020 - Floor Finishes - Carpeting - Broadloom - Economy
Carpeting - Tile Renewal	$ 165,435.00	C3020 - Floor Finishes - Carpeting - Tile
Ceramic Tile Renewal	$ 66,255.00	C3020 - Floor Finishes - Ceramic Tile
Concrete - Sealed Renewal	$ 4,506.00	C3020 - Floor Finishes - Concrete - Sealed
VAT - Average (Asbestos Tile) Renewal	$ 8,028.00	C3020 - Floor Finishes - VAT - Average (Asbestos Tile)
VCT - Average Renewal	$ 85,239.00	C3020 - Floor Finishes - VCT - Average
GWB Taped and Finished Renewal	$ 32,079.00	C3030 - Ceiling Finishes - GWB Taped and Finished
Hydraulic Passenger Elev - Economy Renewal	$ 355,372.00	D1010 - Elevators and Lifts - Hydraulic Passenger Elev - Economy
Elevator Cab Finishes - Passenger Renewal	$ 42,048.00	D1011 - Passenger Elevators - Elevator Cab Finishes - Passenger
Custodial/Utility Sinks - SF Renewal	$ 38,956.00	D2010 - Plumbing Fixtures - Custodial/Utility Sinks - SF
Kitchenette - Cabinet, Counter and Sink Renewal	$ 53,293.00	D2010 - Plumbing Fixtures - Kitchenette - Cabinet, Counter and Sink
Restroom Fixtures 7 - Std Density - Avg Qual Renewal	$ 276,244.00	D2010 - Plumbing Fixtures - Restroom Fixtures 7 - Std Density - Avg Qual
Water Dist Complete - Average Renewal	$ 308,286.00	D2020 - Domestic Water Distribution - Water Dist Complete - Average
Fan Coil System - Cabinet - Heating Only - 2 Pipe Renewal	$ 321,929.00	D3040 - Distribution Systems - Fan Coil System - Cabinet - Heating Only - 2 Pipe
Four Pipe Distribution System w/Pump Renewal	$ 1,588,787.00	D3040 - Distribution Systems - Four Pipe Distribution System w/Pump
Heat Exchanger - Steam/HW - Shell and Tube Renewal	$ 183,891.00	D3040 - Distribution Systems - Heat Exchanger - Steam/HW - Shell and Tube
Steam Piping and Condensate Return Renewal	$ 194,314.00	D3040 - Distribution Systems - Steam Piping and Condensate Return

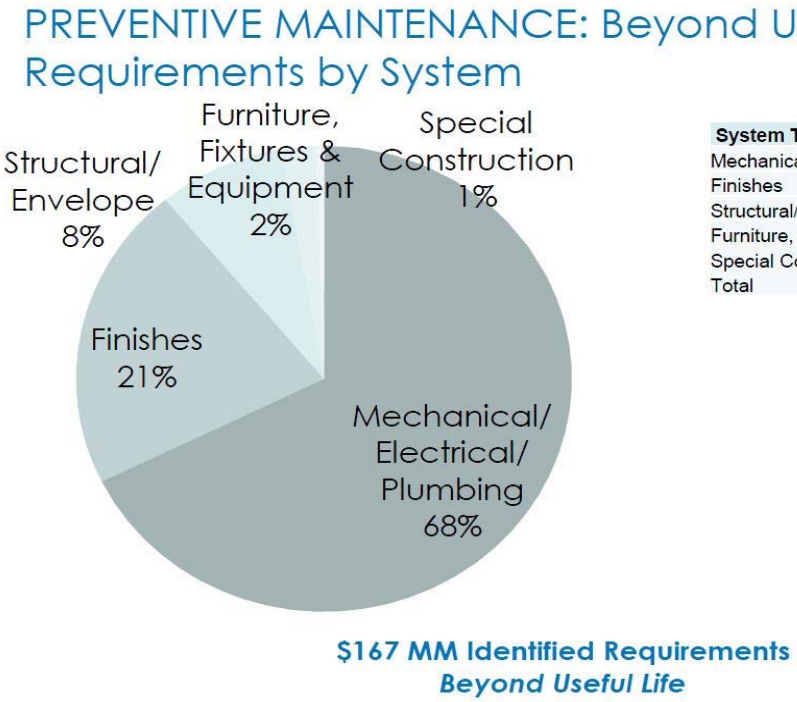
FCI Deeper Dive

- Making The Case
  - Maintain FCI
  - Improve to Target FCI
  - Specific Annual Funding
  - % of Replacement Value



Forecasting

- Building a Budget
  - Drill Down By Category
  - Extract Specific Projects For Funding
- First Stages In “What-If” Planning



System Types	Estimated Cost
Mechanical/Electrical/Plumbing	$ 113,338,939
Finishes	$ 35,210,920
Structural/Envelope	$ 13,844,849
Furniture, Fixtures & Equipment	$ 3,846,384
Special Construction	$ 807,111
Total	$ 167,048,203

Look For Obstacles to Building Longevity

Budget Defense

- Data Makes The Case
- Subjectivity Dismissed
- “Wants” Undergo Additional Scrutiny
- Where to invest?

Data drives decision making

Needs Vs. “Wants”

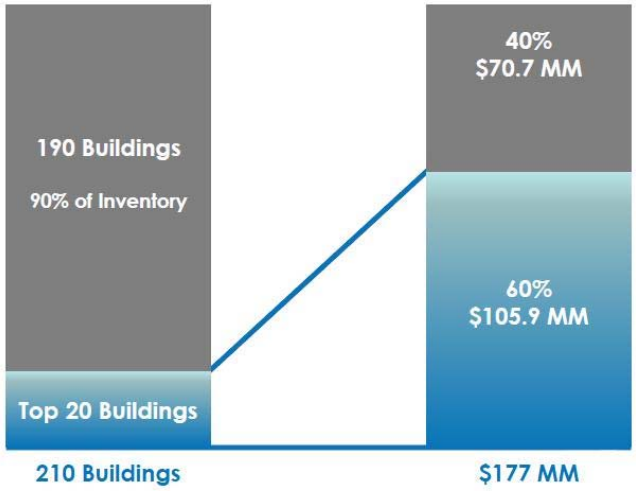
- Respond to “Emergency” Requests
  - Safety is Priority One
  - Failures Will Happen, Budget For Them
  - What is a *REAL* Emergency?
- Recognize Value of Tradeoff B/W Needs and Wants
- Respond to “Social” Requests

Plan For The Unexpected, And Defend Your FCI Budget

Non-Technical Users

- Complex Topics, Simplified Message
- Variety in Expertise
- Value of Decision-Maker's Time

PREVENTIVE MAINTENANCE: Requirements Breakdown
Top 20 Buildings



$177 MM Total Identified Requirements

Boil, Boil, Boil Down The Story You Are Telling

Energy Conservation

Considerations

- What Can Be Done To Lower Operating Costs For These Facilities?
- How Can We Reduce Costs Without Capital Commitment?
- How Long Will These Facilities Operate Before Upgrades Can Be Funded?

Look For Low-Hanging Fruit

Energy Conservation

Add an Energy Audit Component to the Assessment Program.

- Establish Energy Utilization Indices (EUI) for Each Facility. Expose the "Bad Actors"
- Focus on Operating Deficiencies in Buildings With Excessive EUI
- Develop and Evaluate Energy Conservation Measures (ECM) to Reduce Cost
- Implement Retro-Commissioning Activities to Eliminate Unnecessary Energy Losses

Score Your Building Energy Performance, Then Act

Energy Conservation

Field Assessment Teams

- Identify Operational Processes That Are Energy Intensive.
  - System Control Strategies
  - Physical Loss Windows
- Collect Specific Equipment Data on Energy-Consuming Equipment.

Desktop Analyses

- Analyze Building Characteristics
  - Collect and Analyze Utility Bills.
  - Evaluate Occupancies for Conditioned Space and Operational Classification
  - Calculate EUI and Compare to National Databases
  - Identify Candidates For Savings

Field Assessment and Desktop Review Create Complete Picture

Energy Conservation

Audit Reporting

- Document Energy Consumption Patterns and EUI Development.
- Develop Energy Conservation Measures Including Cost to Implement, Impact on EUI, and Return on Investment.
- Rank Recommended ECMs Based on Initial Cost and ROI.

Recommendations Categorized By Type, ROI, or Cost Allow Project Prioritization

Energy Conservation

Retro-commissioning.

- Field-Intensive Evaluation of System Controls. Make Sure the Existing Systems are Operating as Intended.
- Assist Client Service Contractors in Identifying and Correcting Deficiencies.
- Train Client Personnel in Reducing Energy-Wasteful Activities and Processes (low-cost to no-cost ECMs).
- Measure Building Performance (optional).

Get The Most Out Of Your Buildings Energy Dollars

Planning Your Programs

- Consolidation of Space
- Discipline Specific Program
  - Pros
    - Likely to get supplier value
    - Simplifies assembly of design / procurement
  - Cons
    - Multiple “disturbances” to a facility
    - Priorities may not align with work packages

Plan Correctly to Maximize Dollars and Complete Priority Projects

Planning Your Programs

- Consolidated Packages Program
  - Pros
    - ”Crossover” projects reduce operation disruption
    - Integrated project team will reduce “gaps” in design activities
  - Cons
    - May create larger per-building programs and reduce ability to touch more facilities
    - May force lower priority projects into completion out of convenience

Plan Correctly to Maximize Dollars and Complete Priority Projects

Planning Your Programs

- Priority-Based Ranking Program
  - Pros
    - Completes projects in order of need
    - Cost of work easily identified
  - Cons
    - Priorities can affect multiple trades, making design and procurement difficult to organize
    - Likely that facility will receive multiple “touches” as next tier of priorities are accomplished

Plan Correctly to Maximize Dollars and Complete Priority Projects

Elements of Successful Programs

- Clearly Stated Objectives
- Executive Buy-In
- Tracking of Progress
- Tracking of Costs
- Contingency / Risk Planning

Be Clear, Be Organized, Show Progress, Be Accountable

Keeping Data Fresh

- Don’t Let Your Assessment Be a Coffee Table Book
- Reflects the Date of Assessment
- Integrate Ongoing Maintenance
- Integrate New Facilities
- Integrate New Needs That Arise (WOMS), Emergencies
- Integrate Accomplished FCA Work

Prepare a System For Keeping Data Current

Lessons-Learned

- Know The Basic Desired Outcome When Starting
- Define Granularity of Assessment
- Train End Users
- Commit To the Process/Program
- Assessors Must Be Trained Alike
- Use Professionals From Multi-Discipline Firm
- Understand That The Assessment is The Beginning-Choose a Team With Planning Experience

Choose Professionals and Define Intended Results

Lessons-Learned

- New Facilities Can Reduce M&O Cost
- Consider Recent Property Investments
- Decide If Site Deficiencies Also Count Against FCI
- Avoid The “Snowball Effect”
- Guard Against “Average FCI” Tunnel Vision

First Costs Can Lead to Long-Term Cost Savings

Recap

- Role of Facility Condition Assessment (FCA) in understanding “What do we own and what shape is it in?”
- Role of FCA in forecasting PM budgets
- Conflict between named Facility Condition Index (FCI) projects and “wants”
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- Importance of keeping data fresh
- Planning your programs
- Success and failures – lesson’s learned

FCA Is Your Opportunity To Plan With Confidence

Question & Answer

- How Should Cost Escalation Be Addressed?
- Does a FCA Capture Functional Obsolescence?
- Needs > Funding, Now What?
- What Level of Owner Staff Participation is Needed?
- How is “Uglied Out” Captured?
- Who Defines Priorities & Categories (Life Safety, Code, Currently Critical)?
- Software – Cloud or Hosted?
- Coke Vs. Pepsi

The Answer is “Yes, We’ve Been There And Done That”

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